Case Study: New Town Mansion Achieves 15% Annual Energy Savings from Low-Cost Building Operational Improvements

Project Summary

The New Town Mansion, a fifteen year old 27,000 square meter office building that is located in the Hong Qiao Economic and Technological Development Zone in Shanghai, saved an estimated 15% on its energy bills in 2003. The building's manager, Tang Jian Ping, property manager of the New Town Center, attributes these energy and cost savings to a series of simple, low-cost operational improvements that he implemented after attending a training sponsored by the U.S. Environmental Protection Agency's eeBuildings* (www.epa.gov/eeBuildings) program in January 2003.

Actions Taken

To achieve these energy and cost savings, Mr. Tang began by using the U.S. EPA Benchmarking Tool** (www.epa.gov/eeBuildings/Benchmarking) to determine how much energy the New Town Mansion was consuming annually and if this was comparatively lower or higher than other similar Class A commercial office buildings worldwide. Based on an analysis of his energy performance benchmark score, Mr. Tang realized that his building was achieving better than average energy performance, but that there was room for improvement. Furthermore, a close analysis of his energy bills indicated that approximately twenty-five percent of the building's energy was being consumed during non-operating hours. To reduce the amount of wasted energy in his building, Mr. Tang implemented the following measures:

- **Optimized Lighting Schedule:** Re-programmed the Building Automation System (BAS) to control lighting operation time in public space, underground parking, equipment room, and other areas, on as needed basis, instead of twenty-four hours per day, as previously.

- **Optimized Air Conditioning (A/C) Schedule:** Modified the air conditioning schedule to provide A/C from 7:00 AM to 7:00 PM on weekdays as opposed to fourteen hours per day on weekdays and on weekends. Tenants requesting air conditioning during off-hours were required to pay extra.

- **Coil Temperature Reset:** In accordance to outdoor temperature and air conditioner usage, reset "out" coil temperature.

- **Hot Water Temperature Reset:** Reset the hot water temperature from sixty degrees Celsius to fifty degrees Celsius.

Results

Within one year of implementing the above-described operational measures, Mr. Tang saw his energy performance benchmark score increase by 16 points, and based on initial results, estimated 15% energy savings by the end of 2003. Within two years of implementing first the no-cost, then the low-cost measures, Mr. Tang saw his energy savings grow from 15% to 25%, resulting in a total of more than US $200,000 in savings.

Contact Information

To find out more about the Shanghai Hongqiao Economic & Technological Development Zone Property Management Co., Ltd., go to http://www.buildingshanghai.com or contact Mr. Tang Jian Ping at tjptjp@citiz.net or 62756888-8201. For more information on the eeBuildings program, to find out about upcoming trainings and events, or for general information on how to reduce building energy consumption using simple, low-cost operational measures, go to www.epa.gov/eeBuildings or write to eeBuildings@epa.gov.

* The U.S. Environmental Protection Agency's eeBuildings (energy-efficient Buildings) www.epa.gov/eeBuildings program helps building owners, managers, and tenants improve the energy performance of their buildings. Drawing on the expertise of ENERGY STAR, eeBuildings connects financial and environmental performance to energy efficiency.

**The U.S. EPA Benchmarking tool (www.epa.gov/eeBuildings/Benchmarking) is an on-line tool that allows building owners and managers to compare their buildings' energy consumption to other similar buildings worldwide. The tool rates building energy performance on a 1 to 100 scale, where 50 is considered is average energy performance. The tool accounts for differences in building size, occupancy, operating hours, plug loads, climate, and weather and is intended for use with Class A buildings maintaining international comfort standards.

The United States Environmental Protection Agency (EPA) has provided this document through eeBuildings. The goal of eeBuildings is to help owners and managers of office buildings profitably improve their energy efficiency and thereby reduce atmospheric emissions associated with the generation of electricity. ICF Consulting assists EPA in implementing eeBuildings.

Contact: Gary McNeil, US EPA, mcneil.gary@epa.gov
Steve Bagley, ICF, sbagley@icfconsulting.com